

widths of like construction will be acceptable.

(1) *Cotton fabrics.* Cotton fabrics shall comply with the requirements of Federal Specification CCC-C-426 for Type I, Class 3 material.

(2) *Coated upholstery cloth.* Coated upholstery cloth shall comply with the requirements of Federal Specification CCC-A-700.

(3) *Vinyl-dip.* The vinyl-dip coating shall comply with the coating requirements of §160.055-5(b)(2) except there are no color restrictions.

(4) *Adhesive.* The adhesive shall be an all-purpose waterproof vinyl type. Minnesota Mining and Manufacturing Co. EC-870 or EC-1070, United States Rubber Co. M6256, Herculite Protective Fabrics Corp. CVV, Pittsburgh Plate Glass Co. R.828, or equal, are acceptable.

(5) *Reinforcing fabric.* The reinforcing fabric shall be type II, class I, laminated vinyl-nylon high strength cloth in accordance with the requirements of Specification MIL-C-43006.

(d) *Grab Straps.* The grab straps shall be of materials permitted for the cover, or approved equivalent.

(e) *Thread.* Each thread must meet the requirements of subpart 164.023 of this chapter. Only one kind of thread may be used in each seam.

(f) *Welting.* The welting where used may be of any fiber or plastic material suitable for the purpose.

[CGFR 65-37, 30 FR 11586, Sept. 10, 1965, as amended by CGFR 70-143, 35 FR 19964, Dec. 30, 1970; CGD 78-012, 43 FR 27154, June 22, 1978; CGD 84-068, 58 FR 29493, May 20, 1993]

#### § 160.049-4 Construction and workmanship.

(a) *General.* This specification covers buoyant cushions of the box type filled with unicellular plastic foam buoyant material. Such cushions consist essentially of a buoyant insert contained in an outer cover fitted with grab straps. The primary purpose of such cushions is to provide buoyancy to aid a person in keeping afloat in the water. Buoyant cushions providing less than 20 pounds buoyancy or less than 2 inches in thickness will not be acceptable.

(b) *Cover.* One piece of material each for the top and bottom shall be stitched together to form the cover ex-

cept that piecing of the cover material will be allowed provided it is for decorative purposes only. Gusset or boxing materials shall be of not more than two pieces. If more than one piece of material is used for the top, bottom, boxing or gusset, they shall be attached by a double row of stitching of the type shown in Federal Standard No. 751, for Seam types SSw-2 or LSb-2. The top and bottom may be of any of the materials permitted for the cover, but the boxing or gusset shall be a cotton fabric as specified by §160.049-3(b)(1) or other equivalent material of a porous nature. Nonporous materials will not be permitted for the boxing or gusset, but coated upholstery cloth specified by §160.049-3(c)(2), perforated to permit adequate draining and drying will be acceptable.

(c) *Buoyant material.* A buoyant insert for a buoyant cushion must comply with the requirements in paragraph (c) (1) and (2) of this section and may be:

- (1) Molded in one piece; or
- (2) Built up from sheet material if it is formed from:

(i) Three pieces or less in each layer, cemented together with an all-purpose vinyl adhesive such as or equivalent to U.S. Rubber No. M-6256 or Minnesota Mining No. EC-870 and No. EC-1070;

(ii) Three layers or less that may be cemented; and

(iii) Staggered butts and seams of adjacent layers.

(d) *Grab Straps.* Grab straps shall be attached as shown on Dwg. No. 160.049-1 and shall finish 20 inches long and 1 inch wide at opposite ends. The grab straps, if formed from cover material shall be folded and stitched together so as to produce a double thickness with raw edges turned under. Other means will be given special consideration.

(e) *Seams and stitching.* Seams shall be constructed with not less than a 3/8-inch border between the seam and the edge of the cover materials. All stitching shall be a lock stitch, 7 to 9 stitches per inch, except as follows: Chain stitching 6 to 8 stitches per inch with 20/4 thread on top and 40/3 thread on the bottom, will be acceptable in constructing grab straps.

(f) *Workmanship.* All cushions shall be of first class workmanship and shall be

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free from defects materially affecting their appearance or serviceability. Cushions classified as “seconds” or “irregular” will not be acceptable under this specification.

[CGFR 65-37, 30 FR 11586, Sept. 10, 1965, as amended by CGD 72-163R, 38 FR 8119, Mar. 28, 1973]

### § 160.049-5 Inspections and tests.<sup>1</sup>

(a) *General.* Manufacturers of listed and labeled buoyant cushions shall maintain quality control of the materials used, manufacturing methods and the finished product so as to meet the applicable requirements, and shall make sufficient inspections and tests of representative samples and components produced to maintain the quality of the finished product. Records of tests conducted by the manufacturer and records of materials, including affidavits by suppliers that applicable requirements are met, entering into construction shall be made available to the recognized laboratory inspector or the Coast Guard inspector, or both, for review upon request. Any examinations, inspections and tests which are required by the recognized laboratory for listed and labeled devices produced will be conducted by the laboratory inspector at the place of manufacture or other location at the option of the laboratory.

(b) *Lot size and sampling.* (1) A lot shall consist of not more than 1,000 buoyant cushions. A new lot shall be started with any change or modification in materials used or manufacturing methods employed. When a lot of buoyant cushions is ready for inspection, the manufacturer shall notify the recognized laboratory so that they may, at their discretion, assign an inspector to the plant for the purpose of making any tests and inspections deemed necessary. From each lot of buoyant cushions, the manufacturer or the recognized laboratory or U.S. Coast Guard inspector, when assigned, shall select samples in accordance with table 160.049-5(b)(1) to be tested for buoyancy

<sup>1</sup>The manufacturer of a personal flotation device must meet 33 CFR 181.701 through 33 CFR 181.705 which require an instruction pamphlet for each device that is sold or offered for sale for use on recreational boats.

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in accordance with paragraph (e) of this section.

TABLE 160.049-5(b)(1)—SAMPLING FOR BUOYANCY TESTS

Lot size	Number of cushions in sample
200 and under .....	1
201 to 400 .....	2
401 to 600 .....	3
601 to 1,000 .....	4

(c) *Additional tests.* Unannounced examinations, tests and inspections of samples obtained either directly from the manufacturer or through commercial channels may be made to determine the suitability of a product for listing and labeling, or to determine conformance of a labeled product to the applicable requirements. These may be conducted by the recognized laboratory or the U.S. Coast Guard.

(d) *Test facilities.* The laboratory inspector, or the Coast Guard inspector, or both, shall be admitted to any place in the factory where work is being done on listed and labeled products, and either or both inspectors may take samples of parts or materials entering into construction of final assemblies, for further examinations, inspections, or tests. The manufacturer shall provide a suitable place and the apparatus necessary for the performance of the tests which are done at the place of manufacture.

(e) *Buoyancy—(1) Buoyancy test method.* Securely attach the spring scale in a position directly over the test tank. Suspend the weighted wire basket from the scale in such a manner that the basket is weighed while it is completely under water. In order to measure the actual buoyancy provided by the cushion, the underwater weight of the empty basket should exceed the buoyancy of the cushion. To obtain the buoyancy of the cushion, proceed as follows:

(i) Weigh the empty wire basket under water.

(ii) Place the cushion inside the basket and submerge it so that the top of the basket is at least 2 inches below the surface of the water for 24 hours. The tank shall be locked or sealed during this 24-hour submergence period. It